

What is claimed is:

1. An apparatus for measuring a medical substance comprising a sensor which comprises a resonance material where a resonance phenomenon is caused to resonate with an evanescent wave and where said medical substance, i.e. an antigen as an object to be measured, is fixed; and a detecting means for detecting a condition for generating said resonance phenomenon generated in said sensor.

2. An apparatus for measuring a medical substance according to Claim 1, wherein said condition for generating said resonance phenomenon is changed when a mixture of antibody which is coupled with said medical substance in a specific manner and a sample is made contact with a surface of said sensor to which said medical substance is fixed; and said detecting means detects the change .

3. An apparatus for measuring a medical substance according to Claim 2, further comprising a calculating means for recognizing an amount of said medical substance contained in said sample in accordance with a change of said condition for generating said resonance phenomenon detected by said detecting means.

4. A sensor for use in an apparatus for measuring a medical substance comprising a resonance material where a resonance phenomenon in resonating with an evanescent wave, wherein a medical substance, i.e. antigen as an object to be measured in said apparatus, is fixed to said resonance material.

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5. An apparatus for measuring a medical substance comprising a sensor which comprises a resonance material where a surface plasmon resonance phenomenon is caused to resonate with an evanescent wave and where said medical substance, i.e. an antigen as an object to be measured, is fixed; and a detecting means for detecting a condition for generating said surface plasmon resonance phenomenon generated in said sensor.

6. An apparatus for measuring a medical substance according to Claim 5, wherein said condition for generating said surface plasmon resonance phenomenon is changed when a mixture of antibody which is coupled with said medical substance in a specific manner and a sample is made contact with a surface of said sensor to which said medical substance is fixed; and said detecting means detects the change .

7. An apparatus for measuring a medical substance according to Claim 6, further comprising a calculating means for recognizing an amount of said medical substance contained in said sample in accordance with a change of said condition for generating said surface plasmon resonance phenomenon detected by said detecting means.

8. A sensor for use in an apparatus for measuring a medical substance comprising a resonance material where a surface plasmon resonance phenomenon in resonating with an evanescent wave, wherein a medical substance, i.e. antigen as an object to be measured in said apparatus, is fixed to said resonance material.

9. An apparatus for measuring a medical substance comprising a prism having a high refractive index, a thin metal film formed on one of the surfaces of said prism in a direct or indirect manner, a light source for making a light incident upon said thin metal film via said prism, and a detecting means for detecting an incident angle of said incident light at which a surface plasmon resonance phenomenon is generated on said thin metal film via said prism; wherein a medical substance, i.e. antigen as an object to be measured is fixed to one of the surface of said thin metal film which is located on an opposite side where said prism is formed.

10. An apparatus for measuring a medical substance according to Claim 9, wherein said condition for generating said surface plasmon resonance phenomenon is changed when a mixture of antibody which is coupled with said medical substance in a specific manner and a sample is made contact with a surface of said thin metal film to which said medical substance is fixed; and said detecting means detects the change .

11. An apparatus for measuring a medical substance according to Claim 10, further comprising a calculating means for recognizing an amount of said medical substance contained in said sample in accordance with a change of said condition for generating said surface plasmon resonance phenomenon detected by said detecting means.

12. A sensor for use in an apparatus for measuring a medical

substance comprising a prism having a high refracting index, a thin metal film formed on one of the surfaces of said prism in a direct or indirect manner; wherein a medical substance, i.e. antigen as an object to be measured is fixed to one of the surface of said thin metal film which is located on an opposite side where said prism is formed.

13. A sensing element for use in a sensor provided in an apparatus for measuring a medical substance comprising a base plate being able to be mounted on a surface of a prism having a high refractive index, and a thin metal film being formed on one of the surfaces of said base plate; wherein a medical substance, i.e. antigen as an object to be measured is fixed to one of the surface of said thin metal film which is located on an opposite side where said base plate is provided.

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